DT

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/990,336	11/23/2001	Patrick Audebert	216203US2	2269

22850 7590 11/17/2004

OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.
1940 DUKE STREET
ALEXANDRIA, VA 22314

EXAMINER	
DANIELS, ANTHONY J	

ART UNIT	PAPER NUMBER
2615	

DATE MAILED: 11/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

DT

Office Action Summary	Application No.	Applicant(s)	
	09/990,336	AUDEBERT ET AL.	
	Examiner	Art Unit	
	Anthony J. Daniels	2615	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,5,9 and 13* is/are rejected.

7)☒ Claim(s) *2-4,6-8 and 10-12* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *23 November 2001* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

2. Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.121(d)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: V_{seuil}. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion

of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

4. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a **single paragraph** on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

5. The disclosure is objected to because of the following informalities: On page 10, Line 11, "reinitialise" should be "reinitialize".

Appropriate correction is required.

6. The disclosure is objected to because of the following informalities: On page 12, Line 9, "authorises" should be "authorizes". *Note additional misspellings of this type throughout the application.*

Appropriate correction is required.

Claim Rejections - 35 USC § 103

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 1,9,13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miura (US #6,501,506) in view of Rossi (US 20020166948).

As to claim **1**, Miura teaches a charges reading circuit (see Figure 10) including charges storage material (see Figure 10, capacitor "44a"), charges addressing material (see Figure 10, see address transistor "38", Col. 8, Line 13), addressing material enabling the control of injection of charge stored in the storage material characterized by the fact that it includes calibration material (see Figure 10, capacitor, "44b") to deliver information (see Col. 6, Lines 61-63) representative of the charges stored in the storage material (see Col. 3, Lines 61-67, Col. 4, Lines 1-4). The claim differs from Miura in that it requires charges/voltage conversion material including a

conversion capacity, wherein charges are injected into the conversion material, and material to select the capacity from the said information.

In the same field of endeavor, Rossi teaches charges/voltage conversion material (see Figure 2, differential amplifier "200") including a conversion capacity (see Figure 2, capacitor "C6"), wherein charges are injected to conversion material, and material (see Figure 2, switch "sw7") to select capacity from the said information (see [0006], Lines 3-5, *{The change in gain means a selection of the capacitors via the aforementioned switch (sw7).}*). In light of the teaching of Rossi, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include charges/voltage conversion material including a conversion capacity, wherein charges are injected into the conversion material, and material to select the capacity from the said information. Such material allows for an adjustable gain of the charges/voltage conversion material wherein the selected gain corresponds to a optimization in power consumption (see [0006], Lines 14-17).

As to claim **9**, claim 9 is a method claim corresponding to the apparatus claim 1. Therefore, method claim 9 is analyzed and rejected as previously discussed with respect to the apparatus claim 1.

As to claim **13**, Miura teaches a charges reading process (see Figure 10) derived from the detection of radiation (see Col. 2, Lines 54,55) by a matrix of N lines and M columns (see Col. 2, Lines 52-54) of elementary detectors (see Figure 10, photodiode "28"), the process including a reading stage of charges detected by the elementary detector (see Col. 4, Lines 5-30) characterized by the fact that the reading stage of charges is carried out by a process according to claim 9 (see 103(a) rejection above).

8. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miura in view of Rossi (see patent Numbers above) and further in view of Arques et al. (US #4,948,966).

As to claim **5**, Miura teaches a charges reading circuit (see Figure 10) derived of radiation (see Col. 2, Lines 54,55) by a matrix of N lines and M columns (see Col. 2, Lines 52-54) of elementary detectors (see Figure 10, photodiode "28"), the reading device a total of N x M elementary points (see Figure 10), each elementary point being linked to an elementary detector (see Figure 10, photodiode "28" and photodiode below it belonging to the unit cell below it.) and including storage material to store charges detected by the elementary detector to which it is linked (see Figure 10, capacitors "44a" and "44b", Col. 2, Lines 58-60) and addressing material to control injection of charges stored in the storage material (see Figure 10, address transistor "38", Col. 8, Line 13), an elementary point includes calibration storage material (see Figure 10, capacitor "44b") to store a fraction of the stored charges in the storage material (*the charge stored in capacitor 44b has to contain a fraction of the charge in the storage material, because the way the circuit is configured, part of the charge, transferred from the photdiode has to go to each capacitor 44a and 44b, due to the Law of Conservation of Charge)* and calibration addressing material (see Figure 10, address transistor "38") to control the injection of the charge in the calibration storage material. The claim differs from Miura in that it requires charges/voltage conversion points, and conversion material, which has charge injected into it, including a conversion capacity, and a first calibration capacity to convert the addressed charge from the calibration storage material into a calibration voltage and material to select the conversion capacity from the calibration voltage.

In the same field of endeavor, Rossi teaches conversion material (see Figure 2, differential amplifier "200"), which has charge injected into it, including a conversion capacity (see Figure 2, capacitor "C6"), and a first calibration capacity (see Figure 2, capacitor "C7") to convert charges chosen from the pixel array (see Figure 1, pixel array "102") into a calibration voltage and material (see Figure 2, switch "sw6") to select the conversion capacity from the calibration voltage (see [0006], Lines 3-5). In light of the teaching of Rossi, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include conversion material, which has charge injected into it, including a conversion capacity, and a first calibration capacity to convert the addressed charge from the calibration storage material into a calibration voltage and material to select the conversion capacity from the calibration voltage. Such material allows for an adjustable gain of the charges/voltage conversion material wherein the selected gain corresponds to an optimization in power consumption (see [0006], Lines 14-17).

In the same field of endeavor, Arques et al. teaches charges/voltage conversion amplifiers (see Figure 1, "G1,G2,G3") at the bottom of each column (see Figure 1). In light of the teaching of Arques et al., it would have been obvious to one of ordinary skill in the art at the invention was made to include charges/voltage conversion points at the bottom of each column. Such points would allow for faster processing without a large increase in bulk or loss in resolution.

Allowable Subject Matter

9. Claims 2-4,6-8,10-12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: As to claim **2**, the prior art does not teach or fairly suggest a comparator to deliver a comparison signal following the comparison of a calibration voltage with a threshold voltage, nor a switch controlled by the comparison signal. As to claim **4**, the prior art does not teach or fairly suggest material controlled by the comparison signal that controls quiescent current of the differential amplifier. As to claim **6**, the prior art does not teach or fairly suggest the limitations of claim 6, which are the same limitations not taught or fairly suggested in claim 2. As to claim **8**, the prior art does not teach or fairly suggest the limitations of claim 8, which are the same limitations not taught or fairly suggested in claim 4. As to claim **8**, the prior art does not teach or fairly suggest a selection stage which includes a comparison stage to deliver a comparison signal following the comparison the calibration voltage with a threshold voltage, and a switch to connect a supplemental capacitance in parallel with the calibration capacitance if the calibration voltage is higher than the threshold voltage. As to claim **11**, the prior art does not teach or fairly suggest the limitations in claim 11, which are the same limitations not taught or fairly suggested in claim 4. As to claim **12**, the prior art does not teach or fairly suggest a stage to measure the value of a charge read from the conversion voltage measured at the edges of the conversion capacity and of the comparison signal.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anthony J. Daniels whose telephone number is (703) 305-4807. The examiner can normally be reached on 8:00 A.M. - 4:30 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andy Christensen can be reached on (703) 308-9644. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

11/12/2004

NGOC-YEN VU
PRIMARY EXAMINER